SUBJECT AND AUTHOR INDEX OF THE MONTHLY WEATHER REVIEW, 1908.

CHRONOLOGICAL INDEX FOLLOWS.

The following rules have been observed in preparing this index:

The meteorological elements most important in determining climate, such as temperature and precipitation, are entered under both the element and the locality, but the following are entered only under their respective headings, and not under the locality: atmospheric electricity, droughts, earthquakes, evaporation, floods, fog, frost, lightning, meteors, optical phenomena, excessive precipitation, radiation, storms of all kinds, temperature of snow, soil and water.

If tables of observations contain but two subjects, e. g., pressure and temperature, each is indexed separately under its proper heading. Tables containing more than two subjects are entered but once (in addition to the entry under location), under the general heading "Observations," except that the following are indexed separately wherever they occur: auroras, drought, evaporation, fog, frost, halos, number of days with precipitation, ozone, radiation, snow, sunshine, temperature of soil and water, thunderstorms, and (under clouds) number of clear, partly cloudy, and cloudy days.

The letters a, b, c, d, refer to the 1st, 2d, 3d, and 4th quarters of the page, respectively, and indicate a brief note or reference.

```
Abbe, C.
```

Atmospheric influences causing movements of the soil, 436. Can we protect against tornadoes? 101. Damage by frost at Middlebranch, Ohio, 173. Deficient humidity indoors, 406 b. Duty of the Government to protect the people from swindlers, 259. Formation of dew at tree tops, 410. Graduate school of meteorology, 162. Hurricanes affected by mountain ranges. Remarks on, 411. Hythers and the comparison of climates, 281. International exchange service, 213. Is the earth drying up? 411. Meteorological education, 103 b. National conservation commission, 179. Observatory on Mount Etna, 259 b.
Popof and Erman on the use of kites in meteorology, 98.

Rain-making in New Zealand, 208. Reflecting power of clouds, 285.

School boys' weather observations, 213 c.

Study of English, 178.

Summer camp of meteorology, 112 c.

Tasmania and the total solar eclipse, 412 b.

The teacher and the student, 453 d. Tornadoes in Minnesota on May 24, 1908, 135 d.

Training School at Tokyo, Japan, for meteorological observers, 410 b. Velocity of falling raindrops, 407 a.

Where and how can our observers pursue the study of modern science, 179 d.

Abbe, jr., C.

Baltimore meeting of the Association of American Geographers, 421 a.

Damages by flood at Kansas City, Mo., 296 a. Evaporation observations by, 442, 443, 444.

Meteorology at the American Association for the Advancement of Science, 293 d.

Tornadoes in Arkansas during November, 1908, 422.

Abbot, Henry L. Progressive climatic variations on the Isthmus of Panama, 163.

Aerial observations. Upper-air observations and weather forecasts.

Aerodynamics. Résumé of experiments in, 277.

Aerological expedition (Prussian) to East Africa, 422 a.

Africa. A meteorological service in French West, 22 c.

Aerial observations in tropical, 175 c.

Aerial observations in tropical, 175 c.

Agrinsky. The relation between rainfall and the fluctuations in level of the Embach, 298 a.

Air. Composition of, at high altitudes, 293 b.

Almanac. Meteorological, by Albert Bracke of Belgium, 23 b.

Alsace-Lorraine. Rainfall of, 111 c

Alclatore, H. F. Report on floods, Arkansas River, 397.

American Association for the Advancement of Science. Baltimore meeting, 420.

Meteorology at (Hanover meeting), 293 d. erican history. Some climatic influences in, 169. lerson, John A. The work of Prof. Carl Störmer on Birkeland's American history. Anderson, John A.

Angerson, John A. The Work of Prof. Carl Störmer on Birkeland's theory of the aurora borealis, 129.

Angot, M. Wireless weather reports, 112 b.

Annual report of the Chief of the Weather Bureau, fiscal year ending June 30, 1908, 454.

Antarctic expedition. British national, 421 d.

Argentina. Climatic changes in, 448 b.

Station of Argentina meteorological convice on Wendel Value 20.

Station of Argentine meteorological service on Wandel Island, 22 c.

Arkansas. Tornadoes in, November, 1908, 422.

Asia. Notes on the climate of eastern, 364 Association of American Geographers. Baltimore meeting, 1909, 421 a. Atmosphere of the earth. Studies on the vortices of the. See Vortices. Aurora. Störmer's work on the physics of the aurora, 112, 129.

Austral. The wreck of the, 22.

Australian weather, 215.

Australian Meteorological Service. Bulletins of, 263 a.

Balloon voyage, the scientific aspects of a, 296. Ballooning, scientific, and weather forecasts, 283.

Baltimore, climate and weather of, 111.

Bamler, Dr. K. Scientific ballooning and weather forecasts, 283.

Barnes, Dr. H. J. Table of relative humidities in Boston buildings quoted, 283 a.

Bates, D. C. Report upon the dry period and rain-making experiments at Oamaru, New Zealand, 208.

Batum, climate of, 61.

Winds of (abstract), 61.

Wilds of (abstract), 61.

Bauer, J. W. Report of floods, Santee River watershed, 234.

Beals, E. A. Report on flood, Columbia River, 236.

Portland forecast district, 2, 18, 87, 162, 198, 232, 277, 327, 358, 396.

Annual rise of Columbia River in 1908, 235.

Beaufort, N. C., waterspout at, 214.

Becker, Bertrand. Apparatus for protection from frost and hail, 111. Belden, W. S. Report of flood, Mississippi River and Yazoo River, 200.
Tornado of January 31, 1908, 74.
Tornadoes in Mississippi, April 24, 1908, 132.

Bell, Louis. Note on some meteorological uses of the polariscope, 144.

Berry, James. Climatological summary [monthly], 7, 42, 77, 117, 152.
Bigelow, Frank H. Studies on the phenomena of the evaporation of
water over lakes and reservoirs. II. The observations on evaporation made at the reservoir in Reno, Nev., August 1 to September 15, 1907, 24.

III.—Discussion of the observations made at Reno, Nev., August 1 to September 15, 1907, 30.

IV.—The progress of the research in 1908, and the proposed campaign for 1909 and 1910, 437.

Studies on the vortices of the atmosphere of the earth:

III.—The truncated dumb-bell vortex illustrated by the St. Louis,

Mo., tornado of May 27, 1896, 245.

IV.—The DeWitte typhoon, August 1-3, 1901, 328.

V.—The imperfect truncated dumb-bell-shaped vortex and the

composition of vortices illustrated by the ocean-cyclone of October 11, 1905, 398.

Cited on climatic cycles, 449.

Blair, William R. The Baltimore meeting of the American Association for the Advancement of Science, 420 a.

Bolivia. Climatic changes in, 448-449.

A new meteorological bulletin from, 22 a.

Bonney, T. G. Cited on the temperature of the glacial period, 450 b. Borneo. Meteorology in British North, 218 c.

Boston, Mass. Weather influences preceding the evacuation of, 128.

Bourne, E. D. Ice columns in gravelly soil, 98 a. Bowie, E. H. Rivers and floods [monthly summary], 233.

Bowmen, Isalah. Quoted on changes in level of Lake Huasco, 449 a. Bracke, Albert. Meteorological Almanac, 23 b. Bragg, W. H. Theory of, and X-rays, 66. Brandenburg, F. H. Denver forecast district, 2, 18, 52, 86, 126, 162, 198, 327, 358.

Brazil. Climatic contrasts in, 338 a.

Notes on weather and climates made during a summer trip to, 1908,

Government meteorological work in, 254, 290.

Climate of, by E. L. Voss, 23 c. Meteorological service of São Paulo, 23 c. Brazilian campos. The climate of the, 337 a.

British National Antarctic Expedition of 1901-04, 421 d. Association for the advancement of science. Address to the mathematical and physical section (W. N. Shaw). Dublin, September, 1908, 412. Association. Meteorological breakfast at Dublin, 1908, 369 d. Second-order stations, 111 d.

Meteorological office. Scientific meetings at the, 369 c. Meteorologists. Meeting of, in Canada, 175 a.

Brückner, E. Cited on climatic cycles, 446 a, 449 c.

Cited on the temperature of the glacial epoch, 450 b. Buchanan, J. E. Early meteorological data for Saline, Mich., 105. Bureau of Plant Industry. Cooperation of, 442 c. Burrows, O. C. Report of floods, Mississippi River, 207. Cablegrams, meteorological, from Iceland, 22 d. California, recent progress in, 372. Calvert, Philip P. A collection of mean annual temperatures for Mexico and Central America, 93. Canada, climatic charts of, 110 c. Campo, Cal., cloudburst at, August 12, 1891, 259 b. Campos, the fertility of the, 337 c. Campos of São Paulo and Paraná, 336. Cave. The isothermal layer of the atmosphere (remarks), 295 b. Central America, a collection of mean annual temperatures for, 93. Chaffee, Frank P. Tornadoes in Alabama, April 24 and 30, 1908, 133. Changes in the force of the Bureau during 1907–8, 464. Chelsea, Mass. Clouds over the fire, 112. Chelsea, Mass. Clouds over the fire, 112.
Chile, climatic changes in, 448.
Chilton, W. W. Severe wind-storms in New Mexico and Oklahoma, 409.
Chinook winds in eastern Colorado during December, 1907, 87.
Chipchinskii, W. Comparison of the intensity of the solar radiation at St. Petersburg and at Pavlovsk, 62.
Clember Cuba, new observatory at, 175 a.
Clember clouds the arrangement of 998 d. Cirrus clouds, the arrangement of, 298 d. Class under instruction at Washington, 410. Clayton, H. H. The scientific aspect of a balloon voyage, 296. Climate. Climate of the historic past. Part I, The Old World, 359. Part II, The New World, 446. In relation to man, 111. Of Kansas, 88-92. Local changes of, 97. Climates. The comparison of, 281. Climatic changes, causes of (E. Huntington), 449, 450. Supposed in Brazil, 338. Climatic history of the New World and the Old World compared, 449. Climatological data. Excessive precipitation, 11, 45, 80, 120, 155, 192, 226, 269, 319, 351, 388. Honolulu daily record, 15, 49, 84, 124, 159, 196, 230, 273, 324, 356, 393. Heights of rivers, 13, 47, 82, 122, 157, 194, 228, 271, 322, 354, 391. Canadian data, 13, 47, 82, 122, 157, 194, 228, 271, 322, 354, 391. U. S. Weather Bureau stations, 9, 43, 78, 118, 153, 190, 224, 267, 317, 349, 386, Rainfall in Jamaica, 84, 124, 159, 196, 230, 273, 324, 431.
Climatological division. Report of work by, 458.
Climatological summary, 7, 42, 77, 117, 152, 189, 224, 266, 316, 348, 385, 426; [Annual Summary], 466. Cline, I. M. New Orleans forecast district, 2, 13, 52, 86, 126, 162, 198, 232, 276, 326, 357, 395. Tornadoes in Louisiana, April 24th, 1908, 131. Cloud atlas, a new, 293 a. Cloud classification, as to a detailed, 340 d. Clouds, the reflecting power of, 285. Cloudburst, a California, 299. Cold waves during the years 1901-1904, 298 c. Collins, Thomas S., obituary notice of, 23. Columbia River, annual rise in, 1908, 235. Floods of, 1907 (E. A. Beals), 236. Conger, Norman B. Ice conditions on the Great Lakes, winter of 1907-8, Storms and ice on the Great Lakes, 236. Connor, P. Report of floods, Missouri River, Kansas River, 204. Coronas and halos, further observations of, 256. Corrigenda, 146, 186, 381. Cox, H. J. Chicago forecast district, 2, 18, 52, 86, 126, 162, 277, 326, 358. Cronk, J. W. Report of flood, Red River, 202. Cruls, Doctor, death of, 175 d.

Curie, Mme., atomic weight of radium, 66 a. Daingerfield, L. H. Chinook winds in eastern Colorado during December, 1907, 87. Darwin, Charles. Quoted on climatic changes in Chile, 448. David. Cited on the temperature of the glacial period, 450. Davis, T. F. Severe local storm in Florida, 135. Day, F. H. Deficient humidity indoors, 404.

Day, P. C. Climatological summary [monthly], 189, 223, 266, 316, 348, 385, 426; [Annual Summary], 466.

Description of tables and charts, 8, 42, 77, 117, 156, 189, 223, 266, 316, 348, 385, 426. Weather of the month [monthly summary], 5, 39, 74, 115, 150, 187, 220, 263, 313, 345, 382, 423. Deflecting force. An elementary method of deriving the, due to the earth's rotation, 147, 327, 369.

An elementary method of deriving, due to the earth's rotation, for west-east motion, 369.

Description of tables and charts, 8, 42, 77, 117, 156, 189, 223, 256, 316, 348, 385, 426. Detishchev. Cold waves during the years 1901-1904, 298 c.
Devereaux, W. C. Local changes of climate, 97.
Dew. Formation of, at tree tops, 410.
Dines, W. H. The isothermal layer of the atmosphere (remarks), 295 b.
Doldrums, 335 a. Dorpat. The relation between barometric gradient and wind velocity near, 298 b. The diurnal and annual periods of humidity at, 298 b. The meteorological work of the university of, 297. Douglas, J. S. A California cloudburst, 299. Dove's theory of storms (reviewed), 403 c. Dresden Photographic Exposition. Meteorology at the, 175 b. Dumb-bell-shaped vortex. The imperfect truncated, 398. Earth. Is the earth drying up? 411. East Africa, Prussian aerological expedition to, 422. Ekholm. Cited on temperature of the glacial period, 450. Elbruz, a meteorological station on the, 146. Eliot, Sir John, memorial notes on, 23, 71. Ellery, Lieut. Col. R. L. J., memorial note on, 23. Embach, the relation between rainfall and the fluctuations in the level of the, 298 a.

Emery, S. C. Report of flood, Mississippi River, 199.

English, the study of, 178.

Eredia, Filippo, on the rainfall of Italy, 421.

Eshleman, C. H. Remarkable snow-storm at Grand Haven, Mich., 408. Etna, the observatory on Mount, 259.
Europe, climates of the heights of western (abstract), 62.
European cyclone tracks for 1890–1892, 298 b. Evans, E. A. Report of flood, James River, 234. Evaporation. An annotated bibliography of, 181–186, 301, 375. Research in, 1908; and plans for, during 1909 and 1910, 437. The study of, 63. Studies on the phenomena of, over lakes and reservoirs, 24, 30, 437. At Indio, Cal., 443. At Mecca, Cal., 443. Variation in, at the same place (Indio, Cal.), 444. Evaporation stations of the Weather Bureau in the United States, 437. Evaporimeter, Dr. Burton E. Livingston's, 63 d. Examinations for promotion in 1907-8, 461. Faber, Alexander. Memorial notes on, 23. Faris, R. L. Tides of the solid earth, observed by Doctor Hecker, 166. Fassig, Oliver L. The climate and weather of Baltimore, 111. Ferrel's theory of storms (reviewed), 404 c. Fisher, D. Report of flood, Savannah River, 233. Flammarion's observatory at Juvisy, described by Brackey, 23 c. Fog. Luminous, 371. Forecasts. "Long distance." See Long-range forecasts.
Long-range, 275, 276.
Long-range. Weekly weather (E. B. Garriott), 435.
Distribution of, 459.

First distributed by wireless telegraphy, 407. Foot note. Forecasts and warnings [monthly summary], 1, 17, 52, 85, 125, 161, 197, 231, 275, 325, 357, 395. [Annual Summary], 435. Report on, 456 d. Forecasting on the Pacific coast, 98. Forecasting, value of kites in, 326.

Frankenfield, H. C. Forecasts and warnings. [Monthly summary], 395. Remarks on forecasting on the Pacific coast, 100. Rivers and floods. [Monthly summary], 2, 18, 52, 126, 162, 198, 277, 327, 358, 396. [Annual Summary], 435. Quoted on St. Louis, Mo., tornado, May 27, 1896, 245 b. Frost. Studies in the formation of, 259. Frost and hail. Apparatus for protection from, 111. Gager, C. Stuart. The evaporating power of the air at New York Botani-

cal Gardens, 63. Garriott, E. B. Chicago forecast district, 396. Forecasts and warnings [monthly summary], 1, 17, 51, 85, 125, 161, 197, 231, 275, 325, 357, [Annual Summary], 435.

Remarks on paper by Professor McAdie, 100.

Weekly weather forecasts, 435.

Gaskill, S. E. The heaviest rainfall in one hour, 259. Geological Survey, U. S., cooperation with, 437.

German meteorological association, titles of papers read before the, 370. Twenty-fifth anniversary of (Note), 112. Twenty-fifth anniversary of (Note), 112.

Hamburg, 1908, 340 b.

Prize offered by, 299.

German weather station, morning routine at, 292 d.

Gheury, M. E. T. Further observations of halos and coronas, 256.

Glacial period, climate of in North America, 446.

Temperature of (E. Huntington), 450.

Glenn, S. W. Severe wind-storm in South Dakota, 166.

Göckel, Dr. Albert. "Die Luftelektrizität," reviewed. 369 a.

Gold Ernest. The isothermal layar of the atmosphere remarks on "Cold Ernest."

Göckel, Dr. Albert. "Die Luftelektrizität," reviewed. 369 a.
Gold, Ernest. The isothermal layer of the atmosphere, remarks on, 295 b.
Grand Haven, Mich., remarkable snow-storm at, 408.
Great Lakes, storm warning stations on, 237.
Opening and closing of navigation on, 1815-1908, 238.
Great Salt Lake, climatic significance of, 446.
"Green ray," again observed, 339.
Grunsky, C. E. Quoted on evaporation formulas, 443.
Guanacache lakes (Argentina). Moreno quoted on former extent of, 448.
Guilbert, G. Quoted on progressive diminution of rainfall, 411.
Gulf waters, brilliant, 371.
Guthrie, L. J. Report on floods. Arkansas River 396

Guthrie, L. J. Report on floods, Arkansas River, 396.

Hall, Maxwell. The diurnal variation of the rainfall at Kingston, Jamaica, 453.

Contributes rainfall data for Jamaica, 84, 124, 159, 196, 230, 273, 324, 431. Halos and coronas. Further observations of, 256. Harris, R. A. Deflecting force due to the earth's rotation, 327. Hartford, Conn. Installation of automatic river-stage register at, 340.

Harvard College. Early meteorology at, 140, 286.

Heat equator, 334 d.

Henry, Alfred J. Accidental variations in atmospheric pressure in the United States, 53.

Notes on the climate of eastern Asia, 364.

Remarks on Pacific coast forecasting, 101.

Hepworth, Commander W. C. A comparison of the changes in the temperature of the weather of the North Atlantic and in the strength of the trade winds, 371.

Hergesell, H. The present and future state of maritime meteorology, 58. Hersey, H. B. Chicago forecast district, 198, 232, 277.

Hobbs, Hermann E. Rivers and floods [monthly summary], 87.

Hodgkins fund prize. The relation of atmospheric air to tuberculosis, 22. Holl, Clayton. Damage by frost at Middlebranch, Ohio, 174.

Holl, Clayton. Damage by frost at Middlebranch, Ohio, 174.
Hongkong Observatory. Changes at the, 175 d.
Hooper, John K. Weather Bureau men as university students, 180.
Huasco, Lake (Bolivia). Historic changes in the level of, 448-449.
Humboldt. See von Humboldt.
Humidity. Deficient indoors, 404.
Humphreys, W. J. The isothermal layer of the atmosphere, 294 a.
Hunt, H. A. Bulletins of Australian Meteorological Service, 263 a.
Visit to the United States, 263.
Huntington, Ellsworth. The climate of the historic past. Part I, The
Old World, 359. Part II, The New World, 446.
Hurricanes affected by mountain ranges, 411.
Hurricane warnings. August, Chart XI.

Hurricanes. West Indes. March, 1908, 136. Husson, William M. Memorial on, 146. Hygrometers. Recording, for stations, 457 d.

Some experiments in hair hygrometers, 298 c.

Hythers and the comparison of climates, 281.

Ice columns in gravelly soil, 98.
Ice conditions on the Great Lakes, winter of 1907-8, 137.
Ice and storms on the Great Lakes, 1815-1908, 236-44.
Iceland, meteorological cablegrams from, 22.
Ice movements and currents in Bering Strait, 146.
Idaho, dustfall in, 103.
India morecon reinfall of 421 India, monsoon rainfall of, 421. Insolation: See solar radiation. Instruction.

In University of Arkansas, 452. Bradley Polytechnic Institute, 452.

California State School of Agriculture, and University of Cal-California State School of Agriculture, and University of California, 451. Cornell University Summer School, 452. Clarkson School of Technology, 451. Kentucky State University, 452. North Carolina State College of Agriculture and Mechanics, 452. Norwich University, 452. Ohio State University College of Agriculture, 451. University of South Carolina, 451. St. Lawrence University, 451. University of Tennessee, 452. University of Washington, and Summer School of, 453. Teacher and student (C. Abbe), 453.

Training school at Tokyo, 410.
Instrument Division, report of work by, 457.
Instruments, exhibition of meteorological and geographical, 146.

International exchange service, 213. International Meteorological Committee (composition of), 70. Ishida, remarks on M. Tsutsui's paper, 370 d. Isothermal layer of the atmosphere, 294.

W. J. Humphreys on, 294, 420.

Remarks on, by Teisserence de Bort, 294. A. L. Rotch, 294. Mr. Cave, 295, W. H. Dines, 295. Ernest Gold, 295. Italy, rainfall of (Eredia on), 421.

Ivitskii. Temperature and precipitation of Eastern Siberia (abstract), 61.

Jackson, Wm. H. The law of the earth's nocturnal cooling, 103, An elementary method of deriving the deflective force due to the earth's rotation for west-east motion, 369. earth's rotation for west-east motion, 369.

Japan, climate of, 365 d.

Jefferson, Mark S. W. Quoted on rainfall of Lima, 447-8.

Jennings, T. B. Climate of Kansas, 88.

Johnson, F. S. S. New system of storm signals for Norway, 372.

Johnson, H. R. A California cloudburst, comment on, 299 d.

Jones, E. B. Driest year at Portland, Me., 412.

Jurjev. See Dorpat.

Kamchatka. Meteorological explorations in (note), 146. Kassner's meteorological globes, 371. Kharshan. The diurnal and annual periods of the humidity at Jurjev (Dorpat), 298 b.

Kite and balloon ascents in 1909, international, 369 b.

Kingston, Jamaica. Diurnal variation of rainfall at, (Maxwell Hall), 453. Kimball, H. H. Recent additions to the Weather Bureau Library, 3, 21, 72, 113.

Recent papers bearing on meteorology and seismology, 4, 19, 73, 114. A new formula for computing the solar constant from pyrheliometric observations, 108.

Kiosk. Chart and instrument, 457 d.

Popof and Erman on the use of, in meteorology, 98.

Kite stations on Lake Constance, 21, 284.

Kites. Use of, in forecasting, 326, 455-6. Kleinschmidt, E. The rainfall of Alsace-Lorraine, 111.

The kite station on Lake Constance, 284.

Köppen. Cited on relation between solar changes and terrestrial tem-

tures, 449.

Kullmer, C. J. A luminous meteor cloud observed at Urbana, Ill., 410 a.

Kurrik. Sensitometer observations during the years 1902-1906, 298 b.

Lacy, Walter N. Some climatic influences in American history, 169.
Weather influences preceding the evacuation of Boston, Mass., 128.

weather innuences preceding the evacuation of Boston, Mass., 128.
Lancaster, Albert. Memorial notice of, 22.
Landis, D. S. Observations of a tornado near Fort Worth, Tex., 135.
Langley, S. P. Cited on relations between solar changes and terrestrial temperatures, 449.
Lehman, W. F. Tornado at Dora and Bergens, Ala., April 24, 1908, 134.
Library of U. S. Weather Bureau, 461.

Lightning and powerful electric discharges, 92.

Lima. Peru. Changes in rainfall of, 447. Livingston, Mrs. Grace C. An annotated bibliography of evaporation, 181, 301, 375.

Lockyer, N. and W. J. S. Cited on climatic cycles, 449.

Lodholz, L. Portland forecast district, 126.

Louisville, Ky. Excessive precipitation at, 107.

McAdie, A. G. Forecasting on the Pacific slope, 98. Heaviest rainfall in one hour, 259.

Recent progress in California, 372.

San Francisco forecast district, 2, 18, 52, 87, 126, 162, 198, 232, 277, 327, 358, 396.

Suggested reform in meteorological methods, 372.

Suggested reform in meteorological methods, 372.

McCandless, R. H. A small cloudburst near Shasta, Cal., 97.

McDiarmid, F. A. The climate of the Canadian Yukon, 178.

McDonough, P. M. Denver forecast district, 232, 277, 396.

McGlone, Bartgis. Water-spout at Beaufort, N. C., 214.

Mares, David J. Australian weather, 215.

Marine Division, work of, 460.

Mars, the meteorology of, 342.

Marvin, Chas. F. A mercurial barograph of high precision, 307.

Mason, S. C., courtesy of, 442.

Mercurial barograph of high precision, 307.

Meteorological education, 103, 451.

Methods, suggested reform in, 372.

Meteorology. W. N. Shaw quoted on the standing and scope of, 463.

A graduated school of, 162.

Early, at Harvard College, 140.

At the American Association for the Advancement of Science, 293.

At the American Association for the Advancement of Science, 293.

At the British Association, 263 b.
At the Ninth International Geographical Congress, 369 b.

The present and future state of maritime, 58.

A summer camp of, 112.

Meteors. The meteor of October 5, 1907, over New Jersey and Pennsylvania, 142.

Mexico, climatic history of, 446-7. A collection of mean annual temperatures for, 93-97. Mever. Some experiments with hair hygrometers, 298 c.

Meyer. Some experiments with hair hygrometers, 298 c.
Middlebranch, Ohio, damage by frost at, 173.
Milham, Willis I. A two-year's study of spring frost at Williamstown, Mass., 250.
Monthly Weather Review, work of the editor, 462.
Moore, Willis L. Report of the Chief of the Weather Bureau for the fiscal year ending June 30, 1908, 454.
Moreno, F. P. Quoted on climatic changes in Argentine and Bolivia, 448.
Morocco, observations at Cape Spartel, 292 c.
Moskalskii. Climate of Batum (abstract), 61.
Mossman, R. C. Meteorological work in the South Orkneys, 175 b.
Mount Etna, the observatory on, 102.

Mount Etna, the observatory on, 102. Mount Weather, Va., research at, 454.

National conservation commission, 179.
Nelfert, Wm. W. Installation of automatic river-stage registers at Hartford, Conn., 340.
Newcomb, Simon. The meteorology of Mars, 342.
Quoted on quantitative relation between solar changes and terrestrial temperatures, 449, 450.
New World. Climatic history of, compared with that of the Old World, 449

449.

Historic changes in climate of, 446. New York. The evaporating power of the air at the Botanical Garden, 63. New Zealand. Rain-making in, 208.

Report on the dry period and rain-making experiments at Oamaru, 208-13.

Nichols, E. L. A study of overcast skies (abstract), 293 d. Nocturnal cooling. The law of the earth's, 103. North Atlantic. Horse latitudes of the, 334 c.

Prevailing westerlies, 333 b.

Northeast trades, 334 a.

Norway. New system of storm signals for, 372.

Notes from the Weather Bureau Library. C. F. Talman, 21, 70, 110, 145,

174, 218, 263, 292, 339, 368, 421.

Novitskii. The winds of Batum (abstract), 61.

Nutting, P. G. Störmer's work on the physics of the aurora, 112.

Oberbeck's theory of storms. (Reviewed), 404 c.

Observations. Simultaneous meteorological, in Europe, 263.
Observatory buildings of the U. S. Weather Bureau, 463.
Okada, T. Elementary method of deriving the deflecting force due to the earth's rotation, 147.

Training school for meteorological observers, 410.

Oklahoma. Tornado in, November 23, 1908, 423.

Climatic history of, compared with that of the New World, Old World.

Orkneys meteorological work in the south. (Note), 175.

Pacific coast, forecasting on, 98.

Paleo-meteorology, 450.

Panama, progressive climatic variations on the Isthmus of, 163.

Papua, meteorology in (note), 175.
Pavlovsk, comparison of the intensity of the solar radiation at, 62.
Peck, Henry A. The meteor of October 5, 1907, over New Jersey and Pennsylvania, 142.

Pennsylvania, 142.

Penck, A. Cited on temperature of the glacial period, 450.

Penter, Joseph Maria. Obituary, 421.

Peru, changes in climate of, 447-8.

Pilot chart, preparation of, 460.

Pokrovsky. European cyclone tracks for 1890-1892, 298 b.

Polariscope, note on some meteorological uses of the, 144.

Polis, P. Wireless telegraphy in the service of modern meteorology, 407.

Visit to America, 23.

Scord visit to America, 218 b.

Second visit to America, 218 b.

Popof and Erman on the use of kites in meteorology, 98.

Portland, Me., driest year at, 412.

Precht, J. Heat energy emitted by radium, 66 b.

Precipitation. Diurnal variation of, at Kingston, Jamaica (Maxwell Hall), 453.

Hall), 453.

Pressure, accidental variations in, 53.

Prize offered by the German Meteorological Society, 299.

Prussian aerological expedition to East Africa, 422.

Publications of the U. S. Weather Bureau, 463.

Climatological, of the Weather Bureau, 459.

Pursell, U. G. Report of floods, Minnesota River, 207.

Quin, Jno. T. A hurricane in the West Indies in March, 1908, 136.

Raditzky. The arrangement of cirrus clouds, 298 d.

Radium. Atomic weight of, 66 a. Heat energy emitted by, 66 b.

Properties, distribution, and influence on the atmosphere of, 64-70.

Rainfall. Heaviest in one hour, 259.
World-wide relations of the Indian monsoon, 421.

World-wide relations of the Indian monsoon, 421.

Ramsay. Heat energy emitted by radium, 66 c.

Recent additions to the Weather Bureau Library. H. H. Kimball, C. F. Talman, 3, 21, 72, 113, 148, 180, 219, 261, 300, 343, 374, 419.

Recent papers bearing on meteorology and seismology. H. H. Kimball, C. F. Talman, 4, 19, 73, 114, 148, 181, 219, 262, 300, 344, 374, 419.

Reclamation Service, U. S. Cooperation with, 437.

Records. Division of meteorological, work of, 461.

Reed, C. D. Report of floods, upper Missouri River, 204.

Relative humidity of houses in winter (R. dec. Ward), 281.

Reno, Nev. Observations on evaporation, 24, 30.

Research. At Mount Weather, Va., 454 c.

In solar physics at Mount Weather, Va., 454 d.

Upper-air, at Mount Weather, Va., 454 d.

Ridgway, Frank. Obituary notice of, 3.

Opper-air, at mount weather, va., 4010.
Ridgway, Frank. Obituary notice of, 3.
Rio de Janeiro. Weather at, 335 d.
Rivers and Floods. [Monthly summary], 2, 18, 52, 87, 126, 162, 198, 233, 277, 327, 358, 396. [Annual Summary], 435.
River and Flood Service. Report of work by, 458 b.

River and Flood Service. Report of work by, 458 b.

River-gages. Automatic, 458 a.

Roch, F. Dustfall in Idaho, 103.

Roosevelt, Theodore. National Conservation Commission. (Extract from letter of instructions), 179 b.

Rosenthal, Elmar. The meteorological work of the University of Jurjev

(Dorpat), Russia, 297.

Rotch, A. Lawrence. Clouds over the Chelsea fire (Note), 112. The isothermal layer of the atmosphere (Remarks), 294 d.
The warm stratum in the atmosphere, 131.
Roumania. Meteorology in, 110.
Russian meteorological memoirs, abstracts of, 61.

St. Helena. Semidiurnal variation in southeast trade wind at, 263, 417. St. Petersburg. Comparison of the intensity of the solar radiation at, 62. Saline, Mich. Early meteorological data for, 105.

Samoa Observatory, 292 b. Scherer, Prof. J. Hurricanes affected by mountain ranges, 411. Science. Where and how can our observers pursue the study of modern, 179.

Seeley, Dewey A. Tornado at Pekin, Ill., March 27, 1908, 137.
Windstorm at Peoria, Ill., May 5, 1908, 137.
Studies in the formation of frost, 259.

Studies in the formation of frost, 200.

Seismograph records, 457 c.

Sensible temperature, 110.

Sensitometer observations during the years 1902-6, 298 b.

Shasta, Cal. A small cloudburst near, 97.

Shaw, Dr. W. N. Meteorology at the British Association, 263 b.

Address to the Mathematical and Physical Section of the British Association for the Advancement of Science, Dublin, September, 1908,.412.

Quoted on the standing and scope of meteorology, 463. Siberia. Temperature and precipitation of eastern, 61.

Simultaneous observations in Europe at 7 a. m., G. M. T., 263.

Skies. A study of overcast (abstract), 293 d.

Sky glows, brilliant, 219 b.

Smith, J. Warren. Severe windstorms in Ohio, June 19, 1908, 165.

Damage by frost at Middlebranch, Ohio (comment), 174.

Severe windstorms in Ohio, August 12 and 17, 1908, 409. Smith, J. W. Boston forecast district, 2, 18, 52, 86, 126, 162, 198, 232, 276, 326, 357, 395.

276, 326, 357, 395.

Smithsonian meteorological tables (correction in), 179.

Soil, movements of. Atmospheric influences causing, 436.

Solar constant. Apparatus for the study of, 455 b.

Study of, by Weather Bureau, 455 b.

New formula for computing, 108, 455 c.

Solar radiation. Comparison of the intensity of, at St. Petersburg and Paylovsk, 62.

Study of by the Weather Bureau, 455 c.

Study of, by the Weather Bureau, 455 a. South America, changes of climate in, 447-9.

Southeast trades, 335 c.

Southerland, J. L. Evaporation observations by (Mecca, Cal.), 442. Spokane, Wash. The climate of, 175-7. Sresnevsky. The arrangement of cirrus clouds, 298 d. Stewart, Charles. The climate of Spokane, Wash., 175. Storms. A brief historical review of the theories of, 403 c.

Storm path? Is there a type of, 56. Storm, severe local in Florida, 135.

Storm signals for Norway, new system of, 372. Storm, wind, at Peoria, Ill., May 5, 1908, 137. Storm and hurricane warnings. August, Chart XI.

Storms and ice on the Great Lakes, 236-44.

Störmer, Prof. Carl. Work on the physics of the aurora. (Review by Nutting), 112. 1 p.

Work of, on Birkeland's theory of the aurora (J. A. Anderson). 129.

2 p.

Stozir, Ivan. Memorial notes on, 23.

Strachey, Sir Richard. Memorial notice of, 22.
Strong, W. W. Radium: Its properties, distribution, and influence on the atmosphere, 64.

Stumph, A. Evaporation observations by (Indio, Cal.), 442.

Swindlers, the duty of the Government to protect the people from, 259.

Swingle, W. T. Courtesy of, 442.

Symons medal. Presented to M. Leon Teisserenc de Bort, 146.

Talman, C. Fitzhugh. Notes from the Weather Bureau Library, 21, 70, 110, 145, 174, 218, 263, 292, 339, 368, 421.

Comments on "The present and future state of maritime meteorology," 60.

Recent additions to Weather Bureau Library, 148, 180, 219, 261, 300,

343, 374, 419.

Recent papers bearing on meteorology and seismology, 148, 181, 219, 262, 300, 344, 374, 419.

Wireless weather reports, note on, 408.

Tasmania and the total solar eclipse, 412.

Teisserenc de Bort. The isothermal layer of the atmosphere, 294.

Telegraphy. Report of the telegraph service, 463.

Tele-thermoscopes for stations, 457 d.

Temperature. Relation between the range of, and the distribution of land and water, 370.

A comparison of the changes in the temperature of the waters of the North Atlantic and in the strength of the trade winds, 371.

Tezcuco, Lake. Climatic history of, variations in level of, 446.
Thomson, J. J. The isothermal layer of the atmosphere, remarks on, 296 b.

Tides of the solid earth, observed by Doctor Hecker, 166.
Tokyo, Japan. The training school at, for met-orological observers, 410.
Tornadoes. Alabama, April 24 and 30, 1908, 133, 134.

Arkansas, November, 1908, 422.

Can we protect against? 101.

Dora and Bergens, Ala., April 24, 1908, 134. Illinois, Pekin, March 27, 1908, 137.

Louisiana, April 24, 1908, 131. Minnesota, May 24, 1908, 135.

Mississippi, January 31, 1908, 74. April 24, 1908, 132.

Oklahoma, November 23, 1908, 423.

Texas, near Fort Worth, observations of, 135. Wisconsin, November 25, 1908, 409.

Torquemada. Quoted on past climate of Mexico, 447. Trade winds. See Winds.

Transvaal, meteorology in the, 339 d.

Trowbridge, John. Lightning and powerful electric discharges, 92.

Tsutsui, M. Relation between the range of air temperature and the distribution of land and water, 370.

Tuberculosis. Hodgkins fund prize, 22. Turner, George A. Luminous fog, 371.

Turner, Herbert Hall. The isothermal layer of the atmosphere, remarks on, 295 d.

Typhoon, the DeWitte, August 1-3, 1901, 328.

Upper air observations. See Aerial observations. Upper temperature inversion. See Isothermal layer. Urbana, Ill. A luminous meteor cloud observed at, 410.

Van Cleef, Eugene. Is there a type of storm path, 56.

Varney, B. M. Clouds over the Chelsea fire, 112.

Early meteorology at Harvard College, 140, 286.

Velocity of falling rain-drops, 407.

Vincent, J. High pressure over Europe, January, 1907, 111.

Vinogradov. The relation between barometric gradient and wind velocity near Juriev (Dorpat), 298 b.

Vivian, Mrs. Herbert. Weather folk-lore of the Tyrol, 369 c. Voelkov, Alexander. Abstracts of Russian meteorological memoirs, 61. The study of evaporation, 63.

Von Humboldt, Alexander. Cited on climatic changes in Mexico, 446 c. Vortices.

The truncated dumb-bell vortex illustrated by the St. Louis, Mo., tornado, May 27, 1896, 245.

The DeWitte typhoon, August 1-3, 1901, 328.
The imperfect truncated dumb-bell vortex, and the composition of vortices, illustrated by the ocean cyclone of October 11, 1905, 398. Voss, E. L. Climate of Brazil, 23 c.

Walker, Gilbert T. The isothermal layer of the atmosphere, remarks on, 296 b.

```
Walz, F. J.
```

Louisville forecast district, 2, 18, 52, 86, 126, 162, 198, 232, 276, 326, 358, 396,

Excessive precipitation at Louisville, Ky., 107.

Wandel Island, meteorological station on, 22.

Ward, R. DeC.

Climate in relation to man, 111.

Government meteorological work in Brazil, 254, 290.

Kassner's meteorological globes, 371.

Notes on weather and climate made during a summer trip to Brazil, 1908, 333.

On the relative humidity of our houses in winter, 281 d.

Warm stratum in the atmosphere, 131.

Water resources, 461.

Weather Bureau men as educators, 451.

Weather Bureau men as university students, 180.

Weather folk-lore of the Tyrol, 369 c.

Weather of the month (monthly summary), 5, 39, 74, 115, 150, 187, 220, 263, 313, 345, 382, 423.

Williams, H. E.

The class under instruction at Washington, 410.

Thomas Collins, 23.

William M. Husson, 146.

Frank Ridgway, 3.

Williamstown, Mass., a two years' study of spring frosts at, 250.

Trade wind, southeast, semidiurnal variation in, at St. Helena, 263, 417.

Windstorms in New Mexico and Oklahoma, 409.

Windstorms, severe, in Ohio, June 19, 1908, 165. Windstorms in Ohio, August 12 and 17, 1908, 409.

Wireless telegraphy in the service of modern meteorology, 407.

Wireless telegraphy in the U.S. Weather Bureau, 460, and 407, foot note.

Wireless weather reports, 112.
Wood, Chas. S. The Smithsonian meteorological tables (correction), 179.
Woodcock, Maj. Albert. The observatory on Mount Etna, 102.

X-rays, theory of: See Radium, 66 b.

Yamashina, Prince. Memorial on, 175 c. Yukon, the climate of the Canadian, 178.

Zahm, A F. Résumé of experiments in aerial dynamics, 277. Zuni cliff dwellings, evidences of climatic changes, 446.

CHRONOLOGICAL INDEX OF SPECIAL PHENOMENA.

1685-86. Siberia, ground frozen at depth of 91 feet, 298.

January 12. Extreme cold in Cambridge, Mass., 288. 1752.

1754. January 22. Extreme cold in Cambridge, Mass., 288.

January 18. Extreme cold in Cambridge, Mass., 288.
July 10. Meteor and "whirlwind" in New England, 289.
December 24. Extreme cold in Cambridge, Mass., 288.
January 27. Extreme cold in Cambridge, Mass., 288.
May 19. "The great darkness," 141.
September. Very dry year at Portland, Me., 412.
Cloudburst near Shasta, Cal., 97. 1756. 1760.

1761.

1765.

1780.

1883. 1890.

1891.

August 12. Cloudburst at Campo, Cal., 259. 1896.

1896.

May 27. St. Louis, Mo., tornado, 245-251. July 4. Excessive rainfall (5.5 inches) at Louisville, Ky., 107. July 21. Excessive rainfall (7.15 inches) at Shelbyville, Ky., 199. 1896.

1901.

August 1-6. DeWitte typhoon in China Sea, 328-333.

November 14. Meteor at Urbana, Ill., leaving presistent lumin-1904.

ous cloud, 410. October 11. North Atlantic storm, 398-403. 1905.

1906. August 27, Lightning (explosive effect), Warren, N. H., 93.

1906-7. Drought in New Zealand, 208-212. 1907.

October 5. Great meteor over New Jersey and Pennsylvania, 142. January 24. Severest storm on record at Nantucket, Mass., 2. January 31. Tornado in Jefferson County, Miss., 74. 1908.

1908.

1908. February-July. Protracted floods of the Mississippi system, 198-

208, 296. 1908. March. Hurricane in the West Indies, 136.

1908.

March 27. Tornado at Pekin, Ill., 137.

April 12. Clouds over the Chelsea, Mass., fire, 112.

April 24. Tornadoes in Louisiana, Mississippi, Alabama, 131-4. 1908. Tornado at Dora and Bergens, La., 134.

1908. April. Dustfall in Idaho, 103.

1908. May 5. Tornadic windstorm at Peoria, Ill., 137.

1908. May 24. Tornadoes in southern Minnesota, 135.

1908. May 29. Tornado near Fort Worth, Tex., 135 1908.

May 30. Tornadic storm near Blountstown, Fla., 135. 1908. May. Excessive rains in Texas, 126.

June 19. Severe windstorms in Ohio, 165. 1908.

1908. June 27. Severe storm at Pukwana, S. Dak., 166.

SUM-

MONTHLY WEATHER REVIEW.

- June-July. Floods in Columbia River, Washington, 235. June-July. Sky glows in Europe, 219. 1908.
- 1908.
- 1908. June-September. Driest months recorded at Portland, Me., 412.
- June-October. Severe drought and forest fires in the United States, 198, 275-277, 326-327. 1908.
- July 2. Waterspout at Beaufort, N. C., 214. July 24. Luminous fog in Gulf of Siam, 371.
- 1908. July 21-31. West Indian hurricane, and simultaneous typhoon on 1908.
- Chinese coast, 198, 231, 276.

 August. Floods in Georgia, North Carolina, South Carolina, and Virginia, 233, 234. 1908.
- 1908.
- August 12 and 17. Tornadoes in Ohio, 409. September 9-18. West Indian hurricane over the Bahamas, 275. 1908. 1908. September 10-30. Typhoons simultaneous with Atlantic hurri-
- canes, 276, 325. 1908. September 24-October 1. West Indian hurricane over Haiti and the Bahamas, 276, 325, 411.

- 1908. October 12. Typhoon in Philippine Islands, 326.
- 1908. October. Unusually heavy snowfall in Appalachian and Rocky Mountains, 346.
- November 5-6. Tornadoes in New Mexico and Oklahoma, 409. November 14. Remarkable snowstorm, Grand Haven, Mich., 408. 1908. 1908.
- 1908. November 23, 25. Tornadoes in Arkansas, 422.
- 1908. November 25. Tornadoes in Wisconsin, 409.
- 1908.
- November. Phosphorescent water, Gulf of Mexico, 371. December 22-23. Heavy snows in Appalachian and Adirondack 1908. regions, 424.

ADDENDA.

Crew, Henry. George W. Hough, 1836–1909. (Memorial), 475 b. Hough, George W. Memorial of (H. Crew), 475 b. Lamarck, Jean de. Reminiscences of, by his son William, 475 a. Lamarck, Jean de. Reminiscences of, by his son William, 475 a. Lamarck, William. Lamarck [Jean de] as meteorologist, 475 a.